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## IX

# DESCRIPTION OF A NEW GENUS AND SPECIES OF FRESHWATER GASTROPOD MOLLUSK (Scalez petrolia) FROM THE ETCHEGOIN PLIOCENE OF CALIFORNIA

BY

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The investigation of oil-bearing and related sediments of the San Joaquin Valley has resulted in the discovery of the organism described herewith.

# Scalez petrolia, new genus and species

Shell calcareous, thin, flattened, ovate, somewhat more pointed at one end, broadly rounded at the other; dorsal posterior slope broadly concave; non-spiral, concentric, nucleus (apex) placed a short distance beneath dorsal margin but almost in center, longitudinally; outer side (Fig. 1) concave, marked with rough, irregular lamellar growth-ridges which are most pronounced near ventral margin; inner side (Fig. 2) convex, smooth, covered with a deposit of testaceous material; near the ventral margin is a depressed groove on the inner side corresponding in position to a simple pallial line of some lamellibranch molusks; dorsal margin, inside marked by a rounded ridge. Length of type, 7.6 mm.; width, 5.3 mm.

Type: No. 1696, Mus. Calif. Acad. Sci., from Midlands Oil Company's well No. 1 in the S. W. corner of Sec. 34, T. 32 S., R. 24 E., M. D. M., at a depth of 3306 feet.

Paratypes: Nos. 1697 and 1698, Mus. Calif. Acad. Sci., from Pacific Oil Company's well No. 23, Sec. 35, T. 30 S., R. 24 E., M. D. M., at a depth of 3000 feet.

This organism has been found widely distributed in western Kern County, California, in the Sunset-Midway oil field. The specimens thus far have been obtained only from one thin layer of mud-shale which lies beneath the uppermost marine member of the Etchegoin Pliocene. This last is in turn overlaid with freshwater and alluvial deposits classed as the Paso Robles (Tulare) Formation. The shells are very abundant in the particular layer where they occur and such characteristically freshwater genera as Anodonta and Amnicola have been found with them at times. They have only been found in cores obtained from oil wells drilled in the region and have not been detected, thus far, in a surface outcrop.

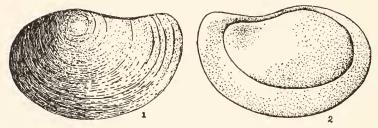


Fig. 1. Scalez petrolia, external, concave side, X 6. Fig. 2. Scalez petrolia, internal, convex side, X 6.

At first glance these flattened plates appear to be the shells of bivalve mollusks, or crustaceans, or even the scales of fishes, but they either lack or possess characters which definitely exclude them from those groups. The nucleus or apex is not at the margin as usual in bivalve mollusks and crustaceans; the concave side faces the exterior and bears lines of growth; the inner surface has no muscle-scars and what would be the hinge line if they were shells of bivalves, shows no evidence of teeth or a true hinge. The fossils have no overlapping areas such as are usually found on scales of fishes; they show no evidence of having been fitted together to form an armor such as may be seen among the ganoids.

The best evidence to show that the shells are of gastropod origin lies in the fact that all which have been examined are asymmetrical the same way. This could not be true if they belonged to any of the other groups mentioned. They appear to be the operculums of freshwater gastropods belonging in or near the family Amnicolidæ and the subfamily Bythininæ, as recently defined by Walker, 1 but the animals either did not possess shells, or if they did, they must have been composed of chitonous or other material which was not preserved in the sediments. Among the large number of specimens examined no trace of a spiral shell such as these would fit has been seen. It would seemingly be impossible for operculums to accumulate in a single layer over so large an area and leave no trace of the shells they closed. At the present time no freshwater naked or chitonous-shelled mollusk is known which is closely related to the above-mentioned family, but it is not inconceivable that one may have existed during the closing days of the Etchegoin Sea. The same body of water contained many other remarkable organisms.

The genus-name Scalez was not obtained from any linguistic or other source, but was chosen because of the general resemblance of the shells to fish scales under which name they were known for some time. The species-name was chosen because of the value the organisms have as an indicator of petroleum-bearing strata.

<sup>&</sup>lt;sup>1</sup> Univ. Michigan Misc. Publ. No. 6, 1918, p. 27.